TRIENNIAL REVIEW WORK PLAN

(EXCERPT FROM TRIENNIAL REVIEW PROCESS SUMMARY AND WORK PLAN, October 3, 2011)

2012-2014
DRAFT

October 3, 2011

IOWA DEPARTMENT OF NATURAL RESOURCES
Water Quality Standards Section

Rochelle Cardinale
Triennial Review
Facilitator

Lori McDaniel
Water Resources Section
Supervisor

Table of Contents

TRIENNIAL REVIEW
WORK PLAN

2012-2014
DRAFT

Executive Summary

The Triennial Review Process is outlined in the Clean Water Act ('the Act') (Sec. 131.20) to be able to give voice to the public on their individual state's water quality. Iowa Department of Natural Resources (DNR) completes this process regularly in varying forms; however, this is the first period where the DNR is attempting to standardize and formalize this process. This work plan describes the four key areas that were identified as being priorities during the Triennial Review process based on their importance, ability to be carried out, and on existing projects. This report is an excerpt from the more complete document entitled, Triennial Review Process Summary and Work Plan, also dated October 3, 2011. These higher priority items include looking at how metals are analyzed and reported, reviewing our lake/wetland designated use classification, populating the designated use classification for very small coldwater streams, and evaluating experience with Iowa's newly (2010) updated Antidegradation policy after it has had time to be put to use.

This work will have to occur at the same time as ongoing projects. There are cycles of field assessment and rulemaking required for stream designations. The DNR is in the process of updating the former Basin Support Document (now, the Waste Load Allocation Procedure). The DNR will again be at the start of its next Triennial Review period near the end of 2013, and the whole cycle will repeat.

XII. Proposed Work Plan

Based on the group feedback in the prioritization process, the following items listed in Table 7 were selected as action items for the Triennial Review Work Plan for the 2012 to 2014 period.

TABLE 7 – TRIENNIAL REVIEW ACTION ITEMS
1. Metals criteria
2. Lake and wetland designated uses
3. Cold water streams
4. Antidegradation

1. Selected Subject Areas

A. Metals Criteria

The metals criteria action item involves further investigation/modification of metals criteria (and relates primarily to the issue of dissolved versus total recoverable, but could include potentially looking more closely at specific contaminants such as at arsenic and copper).

DISSOLVED VS. TOTAL RECOVERABLE

The primary issue here could involve both the metal criteria expression (total vs. dissolved) and the implementation of the metal criteria in different Clean Water Act (CWA) programs. Both the water quality standards criteria in Iowa and measurements reported by DNR water quality monitoring networks are expressed as total recoverable metals. However, USGS data, used by some program areas within the department (such as the Watershed Monitoring and Watershed Improvement Sections), report metals as dissolved, and in doing so, it seems the frequency or magnitude of violations when this dissolved data is used are not as high. The total recoverable methods use unfiltered sampling, whereas the dissolved method measures the dissolved metal concentration in the water column. It is generally believed by EPA and a majority of the scientific community that the use of dissolved metals to set and measure compliance with water quality standards is the preferred approach because dissolved metals more closely approximate the bioavailable fraction of metal in the water column. It might seem easy enough up front to just change the standards to dissolved metals, but there are implications that could come from this. Different program areas have to use the total recoverable values. For example, EPA's NPDES regulations require that metals limits in permits be stated as total recoverable in most cases (40 CFR122.45(c)). When water quality criteria for metals are expressed as the dissolved form, there is a need to translate TMDLs and NPDES permits from the dissolved form of a metal to the total recoverable form. The implications of switching to dissolved values from total recoverable needs to be explored.

ARSENIC

Iowa's current human health criterion of 0.18 µg/L (for both fish and water consumption) was developed based on the EPA 304(a) criterion for human health protection. This ambient criterion applies to water bodies designated as Class C drinking water uses. EPA also established a drinking water

standard of 10 µg/L as the maximum contaminant level (MCL) value under the Safe Drinking Water Act (SDWA), which applies at the tap. Issues related to Iowa's human health criterion are presented below:

1. The human health criterion of 0.18 µg/L was derived based on EPA's late 1960s and 1970s skin cancer studies and old 1980 human health criteria methodology. Since then, new toxicity data have become available. EPA is in the process of revising the recommended human health ambient criteria for arsenic using new toxicity data. Also, EPA has published new 2000 human health criteria methodology. The new scientific information should be considered to update the arsenic human health criteria.
2. The inconsistencies, or gaps, between the drinking water MCL under SDWA and the human health criteria under the 304(a) criteria are a concern. Specifically, the 304(a) human health criterion of 0.18 µg/L (applied to drinking water uses) is significantly different than the MCL of 10 µg/L (applied at the tap) established under SDWA.
3. The human health criteria values are below the detection limits using EPA-approved testing methods and could cause implementation issues.
4. Several States and EPA Region 6 have adopted site-specific, human health criteria that are different than the EPA human health criteria and have been approved by EPA.

COPPER

Iowa adopted the EPA national copper criteria in 2007, which are more stringent than the previous Iowa criteria. The EPA criteria were based on the 1995 Updates: *Water Criteria Documents for the Protection of Aquatic Life in Ambient Water (EPA-820-B-96-001 September 1996)* and are a function of water hardness. Several issues have been raised by different stakeholders since the implementation of the 2007 criteria:

1. After Iowa adopted the copper criteria, EPA published new copper criteria. The EPA new copper criteria use a completely different approach – The Biotic Ligand Model (BLM). The Biotic Ligand Model (BLM) – a metal bioavailability model that uses receiving water body characteristics to develop site-specific water quality criteria. The BLM requires ten input parameters to calculate a freshwater copper criterion: temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. Iowa has the option to adopt the new EPA copper criteria which has the advantage of using site-specific water chemistry data.
2. Some recommend using resident species that only occur in Iowa waters to recalculate the copper criteria for Iowa waters
3. Dissolved copper is the bioavailable form of copper. Many believe Iowa should adopt a dissolved copper standard to replace the total copper standard, part of the issue discussed earlier in this section.
4. Some suggest Iowa should adopt the water effect ratio method to develop site-specific copper criteria.
5. Municipal effluent dischargers could have difficulty meeting the copper limits due to drinking water pipe corrosion sources.
6. The current Iowa copper criteria for aquatic life protection are below the detection limits based on EPA approved testing methods. This is an implementation issue that could cause the appearance of impairments that may not actually be occurring.
7. Copper removal technologies can be costly.

A technical advisory committee will likely be needed to fully address these concerns surrounding metals criteria. These issues cover a lot of different program areas and a great many "old school" and intrinsic practices held by different monitoring programs, DNR and its labs, outside laboratories, private facilities actively involved in this monitoring, and EPA. This group should include members from each of these different areas to look into how they are part of this issue, what their respective program areas can do to address this issue from their perspective, and to ultimately come up with a combined solution. These members should bring with them an understanding of why their program areas use what they use, how they are used, and what impacts different changes might cause on their organization.

B. Lake and Wetland Designated Uses

Lake and wetland designated uses is an item that evolved throughout the Triennial Review process. It was initiated as addressing lake designated uses. As it moved through the TAC discussion process, it was determined that it made logical sense to take a look at wetlands while looking at the lake designated uses.

Separating lakes and wetlands in the B(LW) designation has been a long-standing problem in the surface water classification. There are some obvious issues regarding the applicability of our B(LW) criteria for dissolved oxygen (DO) to wetlands (which, if they are functioning properly as “wetlands,” are low-DO environments). There is also the issue of wetlands functioning as sinks and treatment areas for nutrients (especially nitrates) and the water quality goals of keeping nutrient levels in Iowa lakes as low as possible. Therefore, if/when a numeric criterion for nutrients is established, and if this criterion is applied to all B(LW) waters, nutrient impairments would be identified on waterbodies (wetlands) that are widely viewed as natural treatment areas for excess nutrients.

These issues alone would be sufficient to suggest the need to split lakes from wetlands, but there are other issues (e.g., inherent differences in expected aquatic communities in lakes vs. wetlands). One difficulty in splitting lakes from wetlands in Iowa's surface water classification is that, although a list of Iowa wetlands was developed in the mid-1990s, there is no known list of wetlands that has received buy-in from the various bureaus of department that have management responsibilities regarding wetlands. In the mid-1990s, the IDNR Wildlife Bureau—at the request of the Water Quality Monitoring and Assessment Section—separated wetlands from lakes in the list of Class B(LW) waters in the surface water classification of that time. The goal of this exercise was for Iowa to be able to comply with the EPA requirement for states for report on wetland water quality as part of Clean Water Act Section 305(b) reporting. The 1994 list of Iowa wetlands was incorporated into DNR’s Water Quality Assessment (305(b)) database (ADBNet: http://programs.iowadnr.gov/adbnet/index.aspx). This list has been used for Section 305(b) reporting and Section 303(d) (impaired waters) listing since that time.

As a first cut for addressing this, the lake/wetland separations in ADBNet could be used. This approach, however, is accompanied by the complication that within the waterbodies identified as wetlands in ADBNet, there are wetlands that some (e.g., DNR Fisheries Bureau) consider “shallow lakes”, or "tweener" lakes. These are water bodies that hydrologically exhibit characteristics of both wetland and lakes. Some of these shallow lakes have been the focus of much recent management activity to drain the shallow lake and re-establish aquatic macrophytes, thus resulting in a more stable fishery. The shallow lake issue is something that would need to be addressed in any attempt to split wetlands out of the B(LW) use designation.

Another item of note is that there has been and continues to be some moderately-intensive water quality monitoring on several Iowa wetlands. Based on this monitoring, there has been some attempt (or at least intent) to create an index of biotic integrity (IBI) for Iowa wetlands.

Work to accomplish the goal of separating lakes and wetlands would first have to include compiling known information on these issues within the state. What lists of data do we have available? What work as been done? The ADBNet list of wetlands could be used as a first cut, but this list would require further refining. With an understanding of the universe of sites to look at, we would need to compile a technical advisory committee (TAC) to work through the issues of appropriate nutrient criteria for wetlands and classifying "tweener" lakes.

C. Cold Water Streams

Of the four action items selected, this one is believed to be one of the easier to accomplish. The Class B(CW2) designated use is defined as:

> "Waters that include small, channeled streams, headwaters, and spring runs that possess natural cold water attributes of temperature and flow. These waters usually do not support consistent populations of trout (*Salmonidae* family), but may support associated vertebrate and invertebrate organisms."

This designation was previously created through rulemaking, but was not populated with stream segments. Coordination with the department's fisheries staff will take place to review potential cold water stream segments.

The department will revisit this topic and review what steps have already been taken towards nominating Class B(CW2) streams. Depending on feedback from stakeholders, the department may develop a nomination process for B(CW2) streams.

D. Antidegradation

DNR's revised Antidegradation policy was first implemented in 2010. In year two of the three-year period, the department will evaluate how the Antidegradation Implementation Policy is working, what changes may be needed, and what is working well.

In performing the Antidegradation evaluation, the department will meet with the different sections that work with the Antidegradation procedure to learn about their experiences with it. The department will also talk with wastewater treatment facilities, industries and municipalities, and other interested stakeholders to gain feedback on how the process is working. The department will evaluate processes and procedures, impacts, and opportunities to improve the process.

2. Existing/ongoing projects

In addition to the new projects, it is important to include the department's ongoing water quality standard projects.

A. Nutrients

This is an item that received significant feedback during the Triennial Review. Numerous stakeholders requested information on what was happening with nutrients and the work towards numeric nutrient criteria.

EPA released a memo on March 16, 2011, advocating a partnership with states to address phosphorus and nitrogen pollution through the use of eight framework elements. The URL for this memo is located at the following link:

http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/upload/memo_nitrogen_framework.pdf.

The department is committed to working with other state agencies and stakeholders to develop a comprehensive nutrient strategy.

B. Use Assessment/Use Attainability Analysis (UAA)

With the 2006 revision to the Water Quality Standards, all stream designations fell under the rebuttable presumption of Class A1 (primary contact recreation use), and B(WW-1) (aquatic life use) unless an assessment (UAA) showed that these beneficial uses were not appropriate for the stream (e.g., stream was too small to support primary contact recreation (swimming-type uses)). Of approximately 958 wastewater treatment facility (WWTF) sites (facilities or outfall locations) whose receiving streams have been assessed, there are approximately 115 receiving streams [or wastewater facilities?] that need evaluation through a UAA. To get to this point: approximately 1,180 stream segments have been designated through Batch 3 of these rulemakings; data has been collected for approximately 3,000 recreational use sites; 1,178 aquatic habitat sites; 1,197 fish sites; and 449 photo sites. These numbers are dynamic and continue to grow as facilities seeking new or revised National Pollutant Discharge Elimination System (NPDES) permits for their facilities are added.

Use Assessment/Use Attainability Analyses (UAAs) involve conducting assessments between March 15 and November 15 for recreational use, and from July 1 through October 30 for aquatic use. Another factor in assessments is that the stream assessments can only be conducted when the streams are at base flow conditions and are not experiencing either elevated levels/flooding or drought. In some years in Iowa, particularly in spring and in August, it can be difficult at times to meet these conditions. Another consideration is that staff that perform these assessments are at present (September 2011) limited to three. Once field work is completed, staff then prepares the UAA for each individual stream. Facilities are then notified of the determinations. The results of the stream designations are grouped in batches; each batch is typically a compilation of the field work performed in that recent field season. The designations recommended by the UAAs, where applicable, are then required to go through the rulemaking process and ultimately require EPA approval.

C. Waste Load Allocation Procedure (WLAP) (formerly known as Basin Support Document)

The Waste Load Allocation Procedure (WLAP) document provides the technical methodologies to develop wasteload allocations and water quality-based limits to be protective of surface water quality standards as described in IAC 567 Chapter 61 – Water Quality Standards. A Wasteload Allocation (WLA) is the portion of a receiving water's total maximum daily load (TMDL) that is allocated to one of its

existing or future point sources of pollution. Revisions to this document were initiated in 2010 and continue. A first draft issue paper was sent to internal staff in May 2010. EPA reviewed this document and sent comments back in June 2010. DNR discussed this information via internal meetings, and performed a scoping meeting with EPA in September 2010. After additional revisions to the issue paper, decision points were identified in November 2010. Also at this time, a rule reference document draft was generated and sent to internal DNR staff. In conjunction with the Triennial Review Process described in this document, stakeholder meetings for the WLAP were held together to reduce the number of meetings required by stakeholders and DNR staff. These stakeholder meetings were held in January 2011. Based on comments received from stakeholders, additional decision points were identified. Work remaining for this project includes formation of a WLAP technical advisory committee (TAC), development of a final draft WLAP, stakeholder meetings to discuss final version, development of a consultation package for EPA, and the start of rulemaking. Rulemaking will also include many steps through the fall of 2011 and early 2012 including preparation of a Fiscal Impact Statement including a Jobs Analysis, a Notice of Intended Action, meetings with the Governor's Office, appearances at the Environmental Protection Commission (EPC), six public hearings around the state, preparation of a responsiveness summary, as well as presentation to the Iowa Legislature's Administrative Rules Review Committee.

3. Schedule

The following schedule shown in Table 8 lays out an estimate schedule of activities based on steps needed for each of the four new action items keeping in mind existing projects and workloads. These schedules are estimates and may change depending on different project or DNR requirements. These serve as a general goal for the next three years:

TABLE 8 – Estimated Work Schedule				
	First Quarter (Jan-Mar)	Second Quarter (Apr-Jun)	Third Quarter (Jul-Sep)	Fourth Quarter (Oct-Dec)
2012	* Metals - information gathering * Cold Water - information gathering *Nutrients - Stream TAC cont. *Nutrients - Nutrient Strategy meetings * UAA - Initiate Batch 4 rulemaking * UAA - Batch 3 Pending EPA Review *WLAP - rulemaking	* Metals - information gathering * Cold Water – form Technical Advisory Committee (TAC) *Nutrients - Stream TAC cont. *Nutrients - Nutrient Strategy meetings *UAA – Batch 5 Field Work * UAA - Batch 4 rulemaking * UAA - Batch 3 Pending EPA Review *WLAP - rulemaking	* Metals – form TAC * Metals – Technical Advisory Committee meetings *L&W – information gathering *Cold Water – TAC *Nutrients - Stream TAC cont. *Nutrients - Nutrient Strategy meetings *UAA – Batch 5 Field Work * UAA –Batch 5 prep UAAs * UAA - Batch 4 rulemaking * UAA - Batch 3 Pending EPA Review	* Metals – TAC meetings *L&W – information gathering * Cold Water – Stakeholder meetings *Nutrients - Stream TAC cont. *Nutrients - Nutrient Strategy meetings *UAA – Batch 5 Field Work * UAA – Batch 5 prep UAAs * UAA – Batch 5 Initiate rulemaking *UAA – Batch 4 Pending EPA review
2013	*Metals – EPA Consultation *L&W – EPA Consultation *Cold Water – EPA Consultation *Cold Water – Prepare rule changes *Nutrients – EPA Consultation *Nutrients – Nutrient Strategy meetings *UAA – Batch 5 rulemaking *UAA – Batch 4 Pending EPA review	*Metals – Stakeholder meetings *L&W – Form TAC *Cold Water – Rulemaking *Antidegradation – Information gathering *Antidegradation – Form TAC *Antidegradation – TAC meetings *Nutrients – Nutrient Strategy meetings *Nutrients – TAC meetings *UAA – Batch 6 field work *UAA – Batch 5 rulemaking *UAA – Batch 4 Pending EPA review	*Metals – Stakeholder meetings *L&W – TAC/Stakeholder meetings *Cold Water – Rulemaking *Antidegradation – information gathering *Antidegradation – TAC meetings *Nutrients – Nutrients Strategy meetings *Nutrients – Stakeholder meetings *UAA – Batch 6 field work *UAA – Batch 6 prep UAAs *UAA – Batch 5 Pending EPA review	*Metals – Prepare rule changes *L&W – TAC/Stakeholder meetings *Cold Water – Pending EPA review *Antidegradation – EPA Consultation *Antidegradation – Stakeholder meetings *Nutrients – Nutrients Strategy meetings *Nutrients – Stakeholder meetings *UAA – Batch 6 field work *UAA – Batch 6 prep UAAs *UAA – Batch 6 initiate rulemaking *UAA – Batch 5 Pending EPA review *Triennial Review – Internal stakeholder meetings *Triennial Review – EPA Consultation
2014	*Metals – Prepare rule changes *Metals – rulemaking *L&W – TAC/Stakeholder meetings *Cold Water – Pending EPA review *Antidegradation – Stakeholder meetings *Nutrients – Nutrient Strategy meetings *Nutrients – Stakeholder meetings *UAA – Batch 6 rulemaking *UAA – Batch 5 Pending EPA review *Triennial Review – External stakeholder meetings *Triennial Review – Public meetings	*Metals – rulemaking *L&W – TAC/Stakeholder meetings *Cold Water – Pending EPA review *Antidegradation – Prepare rule changes *Nutrients – Nutrients Strategy meetings *Nutrients – Prepare rule changes *UAA – Batch 7 field work *UAA – Batch 6 rulemaking *UAA – Batch 5 Pending EPA review *Triennial Review – Organize data/TAC	*Metals – Pending EPA review *L&W – Prepare rule changes *Cold Water – Pending EPA review *Antidegradation – Rulemaking *Nutrients – Nutrients Strategy meetings *Nutrients – Prepare rule changes *UAA – Batch 7 field work *UAA – Batch 7 prep UAAs *UAA – Batch 6 Pending EPA review *Triennial Review – Prepare Work Plan	*Metals – Pending EPA review *L&W – Rulemaking *Antidegradation – Rulemaking *Nutrients – Nutrients Strategy meetings *Nutrients – Prepare rule changes *Nutrients – Initiate rulemaking *UAA – Batch 7 field work *UAA – Batch 7 prep UAAs *UAA – Batch 7 initiate rulemaking *UAA – Batch 6 Pending EPA review *Triennial Review – Stakeholder review *Triennial Review – EPA review

XIII. Summary and Conclusions

The Triennial Review process was a useful tool that helped the department determine action items it would look at over the next three years. This process will begin again in 2013. There were items that did not make the cut at this time, but which are nonetheless important. These items will still be monitored where possible and if time and resources allow, they will be given a closer look. The outcome of this process yields a map or path of activity based on known resources available at the time. There are still many more steps that will be required to study and implement any of these issues.